

REMARKS

Summary of Office Action

Claims 1-32 were pending in this application.

Claims 1-7, 12-17, 26, 28 and 29 were rejected under 35 U.S.C. § 102(e) as being anticipated by Gorecki U.S. Patent Application Publication No. 2004/0071205 ("Gorecki"). Claims 22, 23 and 31 were rejected under 35 U.S.C. § 102(b) as being anticipated by Jaynes et al. U.S. Patent Application Publication No. 2005/0047779 ("Jaynes"). Claims 8-11, 24, 25, 27 and 32 were rejected under 35 U.S.C. § 103(a) as being obvious from Gorecki in view of Lu U.S. Patent No. 6,275,836 ("Lu"). Claims 18-21 and 30 were rejected under 35 U.S.C. § 103(a) as being obvious from Hillery U.S. Patent No. 6,178,201 ("Hillery") in view of Wang et al. U.S. Patent No. 6,693,958 ("Wang").

Summary of Telephonic Interview

Applicants would like to thank the Examiner for the courtesies extended during the May 22, 2008 telephonic interview with the undersigned. During the interview, the Examiner's rejections with respect to the independent claims were discussed. Applicants explained the differences between the claimed invention and the prior art and proposed clarifying amendments of the claims (discussed below).

Summary of Applicants' Reply

Applicants have amended claims 1, 4-8, 12, 17, 18, 22, 24 and 26-32 and have added new claims 33-37 in order to

particularly define the claimed invention. Applicants have canceled claims 2, 9, 13, 19, 23 and 25 without prejudice. No new matter has been added and the amendments and new claims are fully supported by the originally-filed application. (See, e.g., applicants' specification at ¶¶ 2, 4, 12 and 18.)

Applicants respectfully traverse the Examiner's rejections.

Statement Under 37 C.F.R. § 1.116(b)(3)

Applicants respectfully request that the amendments presented herein be entered under 37 C.F.R. § 1.116(b)(3). Applicants believe that the proposed amendments place this application in condition for allowance. These amendments were not presented earlier because applicants believed that the previous reply was a good faith effort to advance the prosecution of this application and that the amendments and arguments presented at that time were sufficient to place the application in condition for allowance. Applicants believe that that constitutes "good and sufficient cause why the [present] amendment is necessary and was not earlier presented."

Reply to the Prior Art Rejections

Claims 1, 3-8, 10-12, 14-17, 24, 26-29 and 32

Claims 1-7, 12, 14-17, 26, 28 and 29 were rejected under 35 U.S.C. § 102(e) as being anticipated by Gorecki. Claims 8, 10, 11, 24, 27 and 32 were rejected under 35 U.S.C. § 103(a) as being obvious from Gorecki in view of Lu. These rejections are respectfully traversed.

Applicants' invention, as defined by amended independent claims 1, 8, 12, 17, 24, 26-29 and 32, is directed to circuitry and methods for adaptively equalizing a data signal at a receiver having programmable circuitry. The circuitry and methods include, *inter alia*, selection circuitry controlled by the programmable circuitry for selecting between a first specified or fixed value (or sampling location) and a second computed value (or sampling location) at the time the programmable circuitry is being programmed by configuration data.

Gorecki generally discusses a transmitter that includes equalization circuitry to provide signal compensation. In one implementation of the equalizer in the transmitter, the number of taps or pulse durations can be adjusted in accordance with an adaptive algorithm. In other implementations of the equalizer in the transmitter, the number of taps or pulse durations can be pre-programmed by the user. (Gorecki, Abstract, page 6, ¶¶ 68 and 69 and pages 9-10, ¶¶ 104, 112 and 114.)

First, applicants respectfully submit that Gorecki does not show or suggest adaptively equalizing a data signal at a receiver, as defined by applicants' claims 1, 8, 12, 17, 24, 26-29 and 32. Instead, Gorecki describes an entirely different system that provides for equalization in a transmitter in order to improve signal integrity by introducing intersymbol interference in a transmitted signal. Applicants find no disclosure in Gorecki that shows or suggests that the equalizer described for the transmitter is implemented at a receiver, as required by applicants' claims 1, 8, 12, 17, 24, 26-29 and 32.

Second, applicants respectfully submit that Gorecki does not show or suggest a device having programmable circuitry and processing circuitry for allowing a first value (or sampling location) to be specified or fixed and a second value (or sampling location) to be computed (as discussed during the interview), as defined by applicants' claims 1, 8, 12, 17, 24, 26-29 and 32. On the contrary, as applicants previously argued, Gorecki discusses that the number of taps or pulse durations can be adjusted in accordance with an adaptive algorithm in one implementation, or pre-programmed by the user in another, different implementation (Gorecki, page 6, ¶¶ 68 and 69). Nowhere does Gorecki show or suggest that programmable circuitry and processing circuitry are both included in the same implementation of the equalizer, as specified in applicants' claims.

Finally, applicants respectfully submit that Gorecki does not show or suggest selection circuitry for selecting between a first specified or fixed value (or sampling location) and a second computed value (or sampling location) at the time the programmable circuitry is being programmed by configuration data, as defined by applicants' claims 1, 8, 12, 17, 24, 26-29 and 32. Instead, as discussed above, Gorecki fails to show or suggest the programmable circuitry and processing circuitry both being included in the same implementation of the equalizer. Thus, Gorecki cannot show or suggest selecting between values provided by each of the programmable and processing circuitries. Furthermore, even if Gorecki did show the programmable circuitry and processing circuitry both being included in the same implementation (which it does not),

Gorecki would still fail to show or suggest selecting between the values provided by each of these circuitries at the time the programmable circuitry is being programmed by configuration data because in Gorecki the selection (if at all) would be performed during operation of the transmitter and not when it is being programmed. Moreover, the portions of Gorecki (e.g., paragraph 113) relied upon by the Examiner in rejecting these claims relate to the equalizer implementation where the user specifies values and nevertheless do not show or suggest having both the user specified values and the processing circuitry values available for selection in the same implementation (Office Action, page 12).

Therefore, Gorecki does not show or suggest these features of applicants' claims 1, 8, 12, 17, 24, 26-29 and 32. Lu is cited by the Examiner as allegedly showing other features of the claims and does not make up for the deficiencies of Gorecki relative to the rejection.

Accordingly, applicants respectfully submit that independent claims 1, 8, 12, 17, 24, 26-29 and 32, and claims 2-7, 10, 11, and 14-16 that depend, directly or indirectly from claim 1, 8, 12 or 24, are allowable.

Claims 18, 20, 21 and 30

Claims 18, 20, 21 and 30 were rejected under 35 U.S.C. § 103(a) as being obvious from Hillery in view of Wang. This rejection is respectfully traversed.

Applicants' invention, as defined by amended claims 18 and 30, is directed to circuitry and a method for adaptively equalizing a data signal at a receiver having programmable circuitry programmed by configuration data.

Selection circuitry is controlled by the programmable circuitry to select between a first and a second error signal at the time the programmable circuitry is being programmed by configuration data only once, based on the configuration data, while the equalization implementation circuitry operates on the data signal.

Hillery generally describes an adaptive equalizer that includes a multiplexer 36 that selects between a first error generator 38 and a second error generator 40. The selection is controlled by error signal selector 34 which switches between the error signals in response to a set of control signals reflecting the status of a convergence operation. (Hillery, FIG. 1, Abstract and col. 4, lines 15-41.)

Applicants respectfully submit that Hillery does not show or suggest selection circuitry controlled by programmable circuitry to select between a first and a second error signal as the error signal at the time the programmable circuitry is being programmed by configuration data, as defined by claims 18 and 30. Instead, the Hillery device selects between a two error signals in response to a set of control signals which are generated during the convergence operation. Therefore, because the error signals in Hillery are selected when the device is in operation, Hillery does not show or suggest selecting between a first and a second error signal at the time of programming the programmable circuitry by configuration data, let alone selecting an error signal based on the configuration data, as defined by applicants' claims 18 and 30.

Wang is cited by the Examiner as allegedly showing other features of the claims and does not make up for the deficiencies of Hillery relative to the rejection.

Accordingly, applicants respectfully submit that claims 18 and 30, and claims 20 and 21 that depend, directly or indirectly from claim 18, are allowable.

Claims 22 and 31

Claims 22 and 31 were rejected under 35 U.S.C. § 102(b) as being anticipated by Jaynes. This rejection is respectfully traversed.

Applicants' invention, as defined by amended claims 22 and 31, is directed to circuitry and a method for adaptively equalizing a data signal received at a receiver having programmable circuitry. Selection circuitry is controlled by the programmable circuitry to select either a programmably specified training pattern or a predetermined training pattern as a selectable training pattern at the time the programmable circuitry is being programmed by configuration data only once based on the configuration data.

Jaynes generally describes an adjustable inverse distortion operator. An error generator 70 receives at its input 72 a signal from signal switch 80. Signal switch 80 receives a signal from a decision device and a training signal from external process or operator. (Jaynes, Abstract, page 3, ¶ 18 and page 4, ¶ 23.)

Applicants respectfully submit that Jaynes does not show or suggest selection circuitry that is controlled by programmable circuitry to select a training pattern from a programmably specified training pattern and a predetermined

training pattern at the time the programmable circuitry is being programmed by configuration data, as defined by claims 22 and 31. In particular, although Jaynes discusses the receipt of a training pattern from a process or operator, Jaynes fails to show or suggest that the process and operator are both available to supply training patterns and that a selection circuitry is controlled by programmable circuitry to select only one of their training patterns at the time the programmable circuitry is being programmed by configuration data. Thus, Jaynes does not show or suggest all the features of applicants' claims 22 and 31.

Accordingly, applicants respectfully submit that claims 22 and 31, and claim 23 that depends from claim 22, are allowable.

New Claims

Applicants have added new claims 33-37 in order to more particularly point out and distinctly claim the subject matter applicants regard as the invention. New claims 33-37 depend from claim 1, 8, 12, 22 or 24 and therefore also are patentable.

Conclusion

For the reasons stated above, applicants respectfully submit that this application is in condition for allowance. Reconsideration and prompt allowance of this application are respectfully requested.

Respectfully submitted,

/Gall C. Gotfried/
Gall C. Gotfried
Registration No. 58,333
Agent for Applicants
ROPES & GRAY LLP
Customer No. 36981